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मृदा संचालन मशीनें – प्रतीक – विकास तथा मूल्यांकन के मार्गदर्शी सिद्धान्त

Indian Standard

EARTH MOVING MACHINERY — SYMBOLS — GUIDELINES FOR DEVELOPMENT AND EVALUATION

UDC 621·878/·879 (026) : 003·62

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

May 1991 Price Group 1

Bulk Handling Equipment Sectional Committee, HMD 07

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Bulk Handling Equipment Sectional Committee, had been approved by the Heavy Mechanical Engineering Division Council.

Symbols and graphical representations are used to convey instructions and messages at a glance and considered to be quick methods of communication. Any ambiguity or misinterpretation of a symbol may lead to problem. Therefore symbols should be devised with utmost care to convey what exactly is to be conveyed.

The symbols may have to be devised for use at national level or company level or for specific area/field of use.

This Indian Standard attempts to provide guidelines for devising the symbols and method of their evaluation. However, the symbols should be so devised that these shall not refer to symbols used for purposes such as registered trade marks, supplier's identification symbols and equipment identification symbols.

In the preparation of this Indian Standard considerable assistance has been taken from document ISO/TC 127 N 251 'Guidelines for development and evaluation of symbols', circulated by the International Organization for Standardization.

Indian Standard

EARTH MOVING MACHINERY — SYMBOLS — GUIDELINES FOR DEVELOPMENT AND EVALUATION

1 SCOPE

1.1 This Indian Standard lays down guidelines for development and evaluation of symbols for earth moving machinery.

2 GENERAL REQUIREMENTS

2.1 Symbols shall be graphically as simple, clear, distinct and logical as possible to enhance recognition and reproduction.

2.2 Symbols shall incorporate basic symbol elements into a logical symbolic language which, if not immediately obvious, is at least readily learned.

2.3 Graphical clarity shall prevail in disputes with logical consistency, because no composite symbol is recognizable, no matter how logical it may be, if it can not be distinguished from other composite symbols or if the individual symbol elements cannot be distinguished from each other.

2.4 A minimum detail shall be included in individual symbol elements and composite symbols; only details which enhance recognition shall be allowed, even if other details are accurate recognition of the machine or equipment.

3 SYMBOL ELEMENTS

3.1 Symbol elements may be divided into a number of fundamental types including one or more of those described below.

3.2 Symbol elements representing operational systems (for example, engines, transmissions, hydraulics, brakes) or functional equipment (for example, dozor blades, loader buckers, grapples).

3.3 Symbol elements representing vital machine fluids (for example, oil, fuel, coolant, air).

3.4 Symbols elements representing the status of vital fluids (for example, pressure, temperature, level) or the functional condition of operational systems (for example, lock/unlock, failure or malfunction).

3.5 Symbol elements representing spatial movement or distinct location (for example, direction of movement arrows).

3.6 Symbol elements representing rotational movement.

3.7 Symbol elements representing continuous operation.

4 REPRESENTATION OF SYMBOLS

4.1 Symbol elements representing vital machine fluids shall be combined with symbol elements representing operational systems to create basic composite symbols. For example, the oil symbol element shall be placed within the engine symbol element to represent engine oil, within the transmission symbol element to represent transmission oil, within the hydraulic element symbol to represent hydraulic oil, and within the brake symbol element to represent brake oil.

4.2 Composite Symbols

4.2.1 Composite symbols representing the status of vital fluids or the functioning of operational systems shall be formed by combining symbol elements in logical relationship. Examples are given below.

4.2.1.1 In general monitoring or status-indicating symbol elements (for example, temperature, pressure, level) shall be placed outside the basic composite symbols (for example, engine, engine oil, transmission oil, hydraulic oil).

4.2.1.2 Composite symbols for monitoring temperature shall combine a thermometer (the temperature symbol element)with the basic composite symbols, with the thermometer placed to the right-hand side of the basic composite symbol.

4.2.1.3 Composite symbols representing failure or malfunction of an operational system shall place the malfunction symbol element within the symbol element for the operational system. For example, the brake failure symbol shall place an exclamation point (the malfunction symbol element) inside the brake symbol element.

4.2.2 Composite symbols which represent controlled spatial movement of equipment or machine elements, whether visible or invisible to the operator, shall show both the final position of the equipment or machine element effected by actuation of the control and arrows indicating the direction of movement experienced by that equipment or machine element. For example symbols for raising a boom shall show the boom on its raised position and an arrow pointing up, while symbols for lowering a boom shall show the boom in its lowered position and an arrow pointing down. The arrows shall be located such that the two alternative motions of the boom are clearly differentiated by both the location of the boom and the location of the arrows.

4.2.3 Composite symbols which represent direction of rotational movement shall combine a symbol element for an equipment or machine element with symbol element differentiating clockwise or counter clockwise rotation.

4.2.4 Composite symbols which represent continuous operation of a system or machine element shall combine the symbol element for a system or machine element with symbol elements indicating whether the system or machine element is operating.

5 EVALUATION OF SYMBOLS

5.1 Each symbol shall be examined and shall conform to the general requirements and guidelines laid in **2** to **4**.

5.2 Each symbol shall be examined in relation to other symbols and it shall be distinct from all other symbols.

5.3 The symbol shall convey interpretation of its intended use without ambiguity and possibility of misinterpretation.

5.4 The symbol shall be such as to be reproducible easily.

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